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| **Year level**: 3 and 4 **Curriculum level**: 2  *By Karen Swinton* | | | | | | |
| **Curriculum learning area:** Maths  **Strand: Measurement** | | **How to introduce the unit and key competencies to the students (the hook):**   * **I wonder how much Lily weighs? How could we find out?** * **Our class timetable - what times and events do we have during our week.** * **I wonder how far it is around the field?** | | | | |
| **Level Two Achievement Objectives**  *In a range of meaningful contexts, students will be engaged in thinking mathematically and statistically. They will solve problems and model situations that require them to:*  *Number strategies use simple additive strategies with whole numbers and fractions*   * Create and use appropriate units and devices to measure length, area, volume and capacity, weight (mass), turn (angle), temperature, and time. * Partition and/or combine like measures and communicate them, using numbers and units.     Achievement Objectives used will be highlighted! | | | | | | |
| **National Standards**  **Below expected level - for support**  *In contexts that require them to solve problems or model situations, students will be able to:*  · compare the lengths, areas, volumes or capacities, and weights of objects and the durations of events, using self-chosen units of measurement  **National Standards used highlighted** | | | **Year 3**  *In contexts that require them to solve problems or model situations, students will be able to:*  · measure the lengths, areas, volumes or capacities, and weights of objects and the duration of events, using linear whole-number scales and applying basic addition facts to standard units | | **Year 4**  *In contexts that require them to solve problems or model situations, students will be able to:*  · measure the lengths, areas, volumes or capacities, weights, and temperatures of objects and the duration of events, reading scales to the nearest whole number and applying addition, subtraction, and simple multiplication to standard units | |
| Organisation | Resources | | | Abilities / Needs / ESOL / Group Lists | | Grouping (highlight or circle): |
| Whole class  Extension group  Support group | · NZ Curriculum and Maths - National Standards  · Figure it out - Measurement Levels 2-3  · <http://nzmaths.co.nz/measurement-sites>  · <http://www.primaryresources.co.uk/maths/mathsE1.htm> (measures)  · <http://www.primaryresources.co.uk/maths/mathsE2.htm> (time)  · <http://www.primaryresources.co.uk/maths/mathsE4.htm> (area)  · <http://jmathpage.com/JIMSMeasurementpage.html>  · <http://pinterest.com/mandy73/measurement-activities/>  · <http://www.teachingideas.co.uk/maths/contents_measure.htm>  · <http://www.mimioconnect.com/home/result/results/measurement> | | | Each class has different groupings - ESOL, learning needs and learning attitude of children will affect whether or not the children are willing to take risks in their mathematical learning.    Please refer to individual teachers for detailed group lists. | | Children could be grouped according to ability  · working below expected level  · working at expected level  · working above expected level |
| Key Competency focus: Thinking✔ Managing Self Relating to Others Participating and Contributing✔ Using Language, Symbols and Text✔ | | | | | | |
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| Unit Overview | |
| Title | Measurement |
| Unit Aims | To read a digital clock and analogue clock. To estimate the duration of an event.  To compare the different ways to measure weight and volume. To find out the area of a shape. |
| Curriculum Document Values | |
| Excellence Innovation Inquiry✔ Curiosity✔ Diversity Equity Ecological Sustainability Community and Participation✔ Integrity Respect | |
| Digital Literacy Focus | |
| Task Definition✔ Information Seeking Strategies✔ Location and Access Use of Information✔ Synthesis Evaluation✔ | |
| Global Learning Intentions of unit – the BIG ideas students MUST get:    What do you mean by? What did you do in that bit? Can you show us what you mean by? Could you draw a picture of what you are thinking? | |

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| Misconceptions anticipated | | |
| Everything is weighed the same. Grams, litres and kilometres are all the same. Food comes only one size of packaging | | |
| Key Vocabulary:<http://www.amathsdictionaryforkids.com/dictionary.html> | | |
| **Measure** | **Time Length** | **Area Volume** |
| Assessment/Culminating activity | | |
| Self Assessment✔ Peer assessment✔ Learning reflection✔ Presentation Display Podcast / wiki entry / blog entry Performance  Practical Skills✔ Teacher Observation✔ Learning conversation✔ Written assessment✔ Oral assessment Other (describe)Portfolio✔ | | |

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| Unit implementation – Learning experiences and instruction | | | | | | |
| **Diagnostic Assessment**  JAM Module 9 | | | | **Formative assessment**  Ongoing - self, peer and teacher assessment/observation | | **Summative Assessment - highlight the assessment used**  · Retest JAM assessment  · Time activity to match and identify analogue and digital clocks  · To identify the area  · To measure an object with a ruler  · To estimate and then weigh an object. |
| **Learning Intentions** (to be shared with whole class). We Are Learning To (WALT): | | **Learning Experiences / Activities**  (ICT / SOLO / Multiple Intelligences / Blooms / Authentic Experiences / Enviro etc.) | | | | **Assessment**  Diagnostic / Formative / Summative / Feedback . |
| **Learning intentions**   * When you put up the measurement problem you need to know what is the big idea the children are going to do? * WALT develop a range of strategies to complete the measurement activity. * e.g. WALT develop 5 strategies | | | | | **We are successful when (WASW):**  - We can use different types of measurement.  - We can justify our decisions.  - We can take risks  - We can explain to someone else how we found the solutions | |
| Overview of teaching Measurement:<http://www.nzmaths.co.nz/measurement-information?parent_node>=    Units of Work:<http://nzmaths.co.nz/welcome-geometry-and-measurement><http://www.nzmaths.co.nz/time-units-work?parent_node>=    Learning Objects<http://www.nzmaths.co.nz/learningobjects/315/2>  Standard Units: <http://www.nzmaths.co.nz/time-units-work?parent_node=#Standard%20units>    Highlight units used | | | | | | |
| Unit  Curriculum  Achievement Objectives | | | Specific Learning Outcomes  ***The students will be able to:*** | | | |
| Time | Just a minute  Level 2  Measurement AO 1 | | · recognise the length of a minute  · recognise the length of a second  · tell time after the hour by counting minute    <http://www.nzmaths.co.nz/resource/just-minute?parent_node>= | | | |
| Clock wise  Level 2  Measurement AO 1 | | · tell time to the hour and half hour using analogue clocks  · tell time to the hour and half hour using digital clocks  · solve time problems involving hours and half hours  <http://www.nzmaths.co.nz/resource/clock-wise?parent_node>= | | | |
|  | How long does it take?  Level 2  Measurement AO1    Level 2  Number Strategies AO1 | | * estimate the time taken for daily activities in hours and minutes * use advanced counting or partitioning strategies to solve problems involving minutes and hours * check the reasonableness of answers obtained using a calculator.   <http://www.nzmaths.co.nz/resource/how-long-does-it-take?parent_node>= | | | |
| Length | Making benchmarks  Level 2 Measurement AO1 | | * demonstrate a personal benchmark for 1 metre, 1/2 metre * identify and use external benchmarks to carry out practical measuring tasks * discuss the need for having and using standard measures of length * make sensible estimates about the lengths of given objects   <http://www.nzmaths.co.nz/resource/making-benchmarks-length?parent_node>= | | | |
| Pirate Plays  Level 2 Measurement AO1 | | * recognise the need for a standard unit of length * recognise a metre length * estimate and measure to the nearest metre   <http://www.nzmaths.co.nz/resource/pirate-plays?parent_node>= | | | |
| Make a measurement trail  Level 2 Measurement AO1 | | * carry out practical measuring tasks using appropriate metric units. * make measurement estimates using appropriate metric units * pose measurement questions   <http://www.nzmaths.co.nz/resource/make-measurement-maths-trail?parent_node>= | | | |
| Length | All about me  Level 2 Measurement AO1 | | * recognise the need for a standard unit of length * recognise a centimetre length * estimate and measure to the nearest centimetre   <http://www.nzmaths.co.nz/resource/all-about-me?parent_node>= | | | |
| Paper Planes 2  Level 2 Measurement AO1  Level 2 Measurement AO2 | | * estimate using metres amd centimetres * measure to the nearest metre and centimetre   <http://www.nzmaths.co.nz/resource/paper-planes-level-2?parent_node>= | | | |
| Scavenger Hunt  Level 2 Measurement AO1  Level 2 Measurement AO2 | | * find objects that they estimate to be a 1cm, 10cm, 50cm and one metre long * measure lengths of approximately one metre to the nearest cm   <http://www.nzmaths.co.nz/resource/scavenger-hunt?parent_node>= | | | |
| Area | Outlining Area  Level 2 Measurement AO1 | | · recognise the need for a standard unit of area  · measure surfaces using square centimetres  · estimate the measure of surfaces using square centimeters  <http://www.nzmaths.co.nz/resource/outlining-area?parent_node>= | | | |
| Volume and Capacity      Volume and Capacity | Popcorn  Level 2 Measurement AO1 | | · use non-standard volume units (cups, spoons, bowls) to fill a container and count the number used  · recognise the need for a standard unit of volume  · measure to the nearest litre and half litre by using litre containers to fill and count  <http://www.nzmaths.co.nz/resource/popcorn?parent_node>= | | | |
| How much cereal?  Level 2 Measurement AO1 | | · accurately measure volume using standard kitchen measuring cups    <http://www.nzmaths.co.nz/resource/how-much-cereal?parent_node>= | | | |
| Party Volumes  Level 2 Measurement AO1  Level 2 Measurement AO2 | | · estimate volume using litres and millilitres  · accurately measure volume using litres and millilitres  <http://www.nzmaths.co.nz/resource/party-volumes?parent_node>= | | | |
| Making benchmarks  Level 2 Measurement AO1 | | · use objects of 1 litre volume to estimate the volume of other objects  · discuss the need for having and using standard measures of volume  · make sensible estimates about the volume of given objects  · carry out conversions between basic standard measures of volume (millilitres to litres)  · explain the meaning of metric prefix terminology (e.g kilo)  <http://www.nzmaths.co.nz/resource/making-benchmarks-volume?parent_node>= | | | |
|  | **Lesson plans** | | | | | **Weekly plans - planning folder** |
| End of unit means of recording student reflection  teacher reflection |  | | | | | **Possible focus questions for reflection**:  I have now learnt how to…    Next time I would like to learn how to…    I want to take risks because … |
| **Reflection for Subsequent Planning**  o Results of diagnostic assessment will determine level of prior knowledge and grouping  o Grouping to be flexible as level of learning changes  o Learning experiences are adapted depending on needs of children  o Future planning may need to be altered as suitability learning experiences is discovered.  o Monitor length of time needed for unit. Does this need to be extended next time. | | | | | | |

**Maths Tumble - Run from week 7 to week 10**

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| Start W7-10 | Mon  14/3 | Tues  15/3 | Wed  16/3 | Thurs  17/3 | Mon  21/3 | Tues  22/3 | Wed  23/3 | Thurs  24/3 | Wed  30/3 | Thurs  31/3 | Fri  1/4 | Mon  4/4 |
| Rodger | 4 | 4 | 20 | 20 | 18 | 18 | 19 | 19 | 6 | 6 | 5 | 5 |
| Carrick | 5 | 5 | 4 | 4 | 20 | 20 | 18 | 18 | 19 | 19 | 6 | 6 |
| Karen | 6 | 6 | 5 | 5 | 4 | 4 | 20 | 20 | 18 | 18 | 19 | 19 |
| Debbie | 19 | 19 | 6 | 6 | 5 | 5 | 4 | 4 | 20 | 20 | 18 | 18 |
| Hannah | 18 | 18 | 19 | 19 | 6 | 6 | 5 | 5 | 4 | 4 | 20 | 20 |
| Kelley | 20 | 20 | 18 | 18 | 19 | 19 | 6 | 6 | 5 | 5 | 4 | 4 |

**Maths Tumble 11.30 – 12.30**

Area (Karen), volume & capacity (Debbie), weight (Hannah), angle (Carrick), temperature (Kelley), length (Rodger)

This Primary Resources [website](http://www.primaryresources.co.uk/maths/mathsE1.htm) has many useful measurement examples at different levels

NZMaths [website](http://nzmaths.co.nz/measurement-sites)

At the end of the tumble we should think of assessment tasks to include in Portfolio that examine the level of understanding of the areas covered.